

Claims:

I claim:

1. A method for alignment of front and rear wheels of a single track vehicle, in particular a motorcycle or bicycle, comprising the steps of:
  - (a) providing a front reference line perpendicularly from the longitudinal centerline of said front wheel to one side of said vehicle;
  - (b) providing a rear reference line perpendicularly from the longitudinal centerline of said rear wheel to the same side of said vehicle;
  - (c) providing a rearward projecting alignment reference line perpendicularly oriented to said front reference line;
  - (d) providing a forward projecting alignment reference line perpendicularly oriented to said rear reference line; and
  - (e) aligning said rearward projecting alignment reference line with said forward projecting alignment reference line, so that a common reference plane is formed, with said front reference line and said rear reference line forming perpendicular transversals between said common reference plane and the longitudinal centerline between said front and said rear wheels, whereby said front wheel and said rear wheel are aligned with each other.
2. A preferred embodiment apparatus for alignment of front and rear wheels of a single track vehicle, in particular a motorcycle or bicycle, comprising:

- (a) a center rib disposed along the longitudinal centerline of said front wheel;
- (b) a center rib disposed along the longitudinal centerline of said rear wheel;
- (c) a front alignment unit including a front alignment strut, a front laser module, and a front laser target having an opaque surface;
- (d) means for disposing said front alignment strut perpendicularly to said center rib of said front wheel of said vehicle so that a rearward projecting laser beam from said front laser module, projecting perpendicularly to said front alignment strut will be parallel to the longitudinal centerline of said front wheel;
- (e) a rear alignment unit including a rear alignment strut, and a rear target mirror having a reflective surface;
- (f) means for disposing said rear alignment strut perpendicularly to said center rib of said rear wheel of said vehicle so that said rearward projecting laser beam will be reflected as a forward projecting laser beam toward said front laser target;
- (g) said rearward projecting laser beam and said forward projecting laser beam being aligned with each other, so as to form a common reference plane parallel to the centerline between said front and said rear wheels, whereby said front wheel and said rear wheel are aligned with each other.

3. The wheel alignment apparatus of Claim 2, wherein a rear target having an opaque surface is provided in place of said rear target

mirror, and said rear alignment unit further including a rear laser module disposed to emit said forward projecting laser beam.

4. The alignment apparatus of Claim 2 wherein said means for disposing said front alignment strut perpendicularly to said center rib of said front wheel consists of an outside wheel clamp beam and threaded rod for clamping said center rib of said front wheel between said front alignment strut and said outside wheel clamp beam.
5. The alignment apparatus of Claim 2 wherein said means for disposing said rear alignment strut perpendicularly to said center rib of said rear wheel consists of an outside wheel clamp beam and threaded rod for clamping said center rib of said rear wheel between said rear alignment strut and said outside wheel clamp beam.
6. An alternate embodiment apparatus for alignment of front and rear wheels of a single track vehicle, in particular a motorcycle or bicycle, comprising:
  - (a) a center rib disposed along the longitudinal centerline of said front wheel;
  - (b) a center rib disposed along the longitudinal centerline of said rear wheel;
  - (c) a rear alignment unit including a rear alignment strut, a rear laser module, and a rear laser target having an opaque surface;
  - (d) means for disposing said rear alignment strut perpendicularly to said center rib of said rear wheel of said vehicle so that a forward projecting laser beam from said rear laser module, projecting

perpendicularly to said rear alignment strut will be parallel to the longitudinal centerline of said rear wheel;

- (e) a front alignment unit including a front alignment strut, and a front target mirror having a reflective surface;
- (f) means for disposing said front alignment strut perpendicularly to said center rib of said front wheel of said vehicle so that said forward projecting laser beam will be reflected as a rearward projecting laser beam toward said rear laser target;
- (g) said forward projecting laser beam and said rearward projecting laser beam being aligned with each other, so as to form a common reference plane parallel to the centerline between said front and said rear wheels, whereby said front wheel and said rear wheel are aligned with each other.

7. The alignment apparatus of Claim 6 wherein said means for disposing said front alignment strut perpendicularly to said center rib of said front wheel consists of an outside wheel clamp beam and threaded rod for clamping said center rib of said front wheel between said front alignment strut and said outside wheel clamp beam.
8. The alignment apparatus of Claim 6 wherein said means for disposing said rear alignment strut perpendicularly to said center rib of said rear wheel consists of an outside wheel clamp beam and threaded rod for clamping said center rib of said rear wheel between said rear alignment strut and said outside wheel clamp beam.

9. An additional embodiment apparatus for alignment of front and rear wheels of a single track vehicle, in particular a motorcycle or bicycle, comprising:
  - (a) a lip disposed along the edge of said front wheel, said lip being parallel to the longitudinal centerline of said front wheel;
  - (b) a lip disposed along the edge of said rear wheel, said lip being parallel to the longitudinal centerline of said rear wheel;
  - (c) a rear inside wheel clamp beam extending across said lip of said rear wheel so that said rear inside wheel clamp beam forms a chord across said lip of said rear wheel;
  - (d) a rear alignment unit including a rear alignment strut, a rear laser module, and a rear laser target having an opaque surface;
  - (e) means for disposing said rear alignment strut perpendicularly to said rear inside wheel clamp beam so that a forwardly projecting laser beam from said rear laser module, projecting perpendicularly to said rear alignment strut will be parallel to the longitudinal centerline of said rear wheel;
  - (f) a front inside wheel clamp beam extending across said lip of said front wheel so that said front inside wheel clamp beam forms a chord across said lip of said front wheel;
  - (g) a front alignment unit including a front alignment strut and a front target mirror having a reflective surface;

(h) means for disposing said front alignment strut perpendicularly to said front inside wheel clamp beam so that said forward projecting laser beam will be reflected as a rearward projecting laser beam toward said rear laser target;

(i) said forward projecting laser beam and said rearward projecting laser beam being aligned with each other, so as to form a common reference plane parallel to the centerline between said front and said rear wheels, whereby said front wheel and said rear wheel are aligned with each other.

10. The wheel alignment apparatus of Claim 9, wherein a front target having an opaque surface is provided in place of said front target mirror, and said front alignment unit further including a front laser module disposed to emit said rearward projecting laser beam.

11. A method of positioning said front alignment unit of Claim 10, wherein said front alignment unit is positioned an offset distance from said front inside wheel clamp beam; said offset distance being equal to one half the difference in width between said rear wheel and said front wheel.

12. The alignment apparatus of Claim 9 wherein said means for disposing said front alignment strut perpendicularly to said inside wheel clamp beam of said front wheel consists of an outside wheel clamp beam and threaded rod for clamping said inside wheel clamp beam and said outside wheel clamp beam onto said front wheel.

13. The alignment apparatus of Claim 9 wherein said means for disposing said rear alignment strut perpendicularly to said inside wheel clamp beam of said rear wheel consists of an outside wheel clamp beam and

threaded rod for clamping said inside wheel clamp beam and said outside wheel clamp beam onto said rear wheel.

14. An additional embodiment apparatus for alignment of front and rear wheels of a single track vehicle, in particular a motorcycle or bicycle, comprising:

- (a) a lip disposed along the edge of said front wheel, said lip being parallel to the longitudinal centerline of said front wheel;
- (b) a lip disposed along the edge of said rear wheel, said lip being parallel to the longitudinal centerline of said rear wheel;
- (c) a front inside wheel clamp beam extending across said lip of said front wheel so that said front inside wheel clamp beam forms a chord across said lip of said front wheel;
- (d) a front alignment unit including a front alignment strut, front laser module, and front laser target having an opaque surface;
- (e) a means for disposing said front alignment strut perpendicularly to said front inside wheel clamp beam so that a rearward projecting laser beam from said front laser module, projecting perpendicularly to said front alignment strut will be parallel to the longitudinal axis of said front wheel;
- (f) a rear inside wheel clamp beam extending across said lip of said rear wheel so that said rear inside wheel clamp beam forms a chord across said lip of said rear wheel;

- (g) a rear alignment unit including a rear alignment strut and a rear target mirror having a reflective surface;
- (h) means for disposing said rear alignment strut perpendicularly to said rear inside wheel clamp beam so that said rearward projecting laser beam will be reflected as a forward projecting laser beam toward said front laser target;
- (i) said forward projecting laser beam and said rearward projecting laser beam being aligned with each other, so as to form a common reference plane parallel to the centerline between said front and said rear wheels, whereby, said front wheel and said rear wheel are aligned with each other.

15. The alignment apparatus of Claim 14 wherein said means for disposing said front alignment strut perpendicularly to said inside wheel clamp beam of said front wheel consists of an outside wheel clamp beam and threaded rod for clamping said inside wheel clamp beam and said outside wheel clamp beam onto said front wheel.
16. The alignment apparatus of Claim 14 wherein said means for disposing said rear alignment strut perpendicularly to said inside wheel clamp beam of said rear wheel consists of an outside wheel clamp beam and threaded rod for clamping said inside wheel clamp beam and said outside wheel clamp beam onto said rear wheel.